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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,523	01/23/2002	Donald Felt Kimball	4740-039	9349

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EXAMINER	
SHINGLETON, MICHAEL B	
ART UNIT	**PAPER NUMBER**
2817	

DATE MAILED: 11/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/055,523	KIMBALL ET AL.	
	Examiner	Art Unit	
	Michael B. Shingleton	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-55* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,15-29,40 and 47* is/are rejected.

7)☒ Claim(s) *2-14,30-39,41-46 and 48-55* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 40 and 47 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ikeda et al. 5,708,376 (Ikeda).

Figure 1 and the relevant text of Ikeda discloses a multistage amplifier arrangement and method of "improving" the performance of a multistage amplifier having at least an initial stage 14 and a final stage 11. Ikeda includes the steps and structure of deriving a current-mode first feedback signal from an output of the initial stage via the feedback path 5, deriving a current-mode second feedback signal from an output of the final stage via the feedback path 13. Figure 1 of Ikeda clearly shows the first and second feedback paths being combined at the inverting terminal of the first stage 14. Note that the series combination of resistor R_1 and C_1 of the instant invention is called a "current-mode" producing signal. The capacitor elements 5 and 13 of the Ikeda reference must also produce a "current-mode" signal as meant by applicant for there is a discrete resistance in the line with these capacitors 5 and 13 forming the same type of feedback path that applicant refers to as producing a "current-mode" signal. As to the term "improving" this is viewed as a broad term for clearly the device of Ikeda is "improved" over some other multistage amplifier. Note that in STX LLC. v. Brine, 211 F.3d 588, 591, 54 USPQ2d 1347, 1350 (Fed. Cir.2000) (holding that the preamble phrase "which provides improved playing and handling characteristics" in a claim drawn to a head for a lacrosse stick was not a claim limitation) (See MPEP 2111.02). Note that the input signal is applied to the non-inverting terminal of the initial stage amplifier 14. Claim 47 recites "setting a frequency response of at least one of the first and second feedback signals to compensate for a frequency response of the multistage amplifier". The capacitors 5 and 13 will set a frequency response, as these are reactive elements. As to the phrase "to compensate for a frequency response of the multistage amplifier", this is a very broad phase in that the mere setting of a frequency response compensates for a frequency response of the multistage amplifier. In other words setting the capacitance values of the feedback paths mentioned above selects or modifies (compensates for) the frequency response of the multistage amplifier from what it would have been had there been no capacitors

in the feedback paths. Furthermore the frequency response of the multistage amplifier due to the DC feedback is compensated for as the DC frequency is blocked that the capacitors 5 and 13 in Ikeda.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 15-18 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. 5,708,376 (Ikeda).

Figure 1 and the relevant text of Ikeda discloses a multistage amplifier arrangement and method of "improving" the performance of a multistage amplifier having at least an initial stage 14 and a final stage 11. Ikeda includes the steps and structure of deriving a current-mode first feedback signal from an output of the initial stage via the feedback path 5, deriving a current-mode second feedback signal from an output of the final stage via the feedback path 13. Figure 1 of Ikeda clearly shows the first and second feedback paths being combined at the inverting terminal of the first stage 14. Note that the series combination of resistor R_1 and C_1 of the instant invention is called a "current-mode" producing signal. The capacitor elements 5 and 13 of the Ikeda reference must also produce a "current-mode" signal as meant by applicant for there is a discrete resistance in the line with these capacitors 5 and 13 forming the same type of feedback path that applicant refers to as producing a "current-mode" signal. As to the term "improving" this is viewed as a broad term for clearly the device of Ikeda is "improved" over some other multistage amplifier. Note that in STX LLC. v. Brine, 211 F.3d 588, 591, 54 USPQ2d 1347, 1350 (Fed. Cir.2000) (holding that the preamble phrase "which provides improved playing and handling characteristics" in a claim drawn to a head for a lacrosse stick was not a claim limitation) (See MPEP 2111.02). Note that the input signal is applied to the non-inverting terminal of the initial stage amplifier 14. Ikeda is silent on the use of an "intermediate stage" or intermediate buffer stage between the first and last stage amplifiers. Ikeda does show the use of MOSFETs for the construction of the final stage (Note Figure 11).

The use of Buffers for impedance matching and stage isolation is well known in the art. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was

made to have provided an intermediate stage buffer amplifier between the initial stage and the final stage in Ikeda so as to provide for impedance matching and stage isolation between stages as is conventionally known in the art.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada 5,737,697 (Yamada) in view of Ikeda et al. 5,708,376 (Ikeda).

Figure 1 and the relevant text of Yamada disclose a radio base station including a RF power amplifier 3 and a variable gain amplifier 2. Yamada is silent on the details of the variable gain amplifier 2.

As noted above Figure 1 and the relevant text of Ikeda discloses a multistage variable gain amplifier arrangement and method of "improving" the performance of a multistage amplifier having at least an initial stage 14 and a final stage 11. Ikeda includes the steps and structure of deriving a current-mode first feedback signal from an output of the initial stage via the feedback path 5, deriving a current-mode second feedback signal from an output of the final stage via the feedback path 13. Figure 1 of Ikeda clearly shows the first and second feedback paths being combined at the inverting terminal of the first stage 14. Note that the series combination of resistor R_1 and C_1 of the instant invention is called a "current-mode" producing signal. The capacitor elements 5 and 13 of the Ikeda reference must also produce a "current-mode" signal as meant by applicant for there is a discrete resistance in the line with these capacitors 5 and 13 forming the same type of feedback path that applicant refers to as producing a "current-mode" signal. As to the term "improving" this is viewed as a broad term for clearly the device of Ikeda is "improved" over some other multistage amplifier.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace use the variable gain amplifier of Ikeda for the variable gain amplifier 2 of Yamada because, as the Yamada reference is silent on the exact variable gain amplifier circuit one of ordinary skill in the art would have been motivated to use any art-recognized equivalent variable gain amplifier circuit for the variable gain amplifier of Yamada such as the conventional variable gain amplifier circuit as taught by Ikeda.

Claims 19, 20 and 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grondahl 5,936,464 (Grondahl) in view of Ikeda et al. 5,708,376 (Ikeda).

Figures 1 and 4, and the relevant text of Grondahl discloses a radio base station for use in a communication network (Note that the intended use of "base station" is clearly met by Grondahl because

even if the communication device of Grondahl is a portable, when a portable is used in a fixed location it becomes a "base station" in a communication network.). Grondahl further includes a RF power amplifier 260 that receives a supply voltage from an envelope amplifier 270. This forms the basic EER amplifier arrangement. Also note that EER means that the input signal is split into two paths the amplitude path that includes the amplifier 270 and the phase path (See column 2, around line 37). Also as the device of Grondahl is a transmitter as shown in Figure 4, clearly Grondahl includes "transmit processing resources generating the amplitude and phase modulation signals based on desired transmit information." Grondahl is silent on the exact details of the amplifier structure 270.

As noted above Figure 1 and the relevant text of Ikeda discloses a multistage amplifier arrangement and method of "improving" the performance of a multistage amplifier having at least an initial stage 14 and a final stage 11. Ikeda includes the steps and structure of deriving a current-mode first feedback signal from an output of the initial stage via the feedback path 5, deriving a current-mode second feedback signal from an output of the final stage via the feedback path 13. Figure 1 of Ikeda clearly shows the first and second feedback paths being combined at the inverting terminal of the first stage 14. Note that the series combination of resistor R_1 and C_1 of the instant invention is called a "current-mode" producing signal. The capacitor elements 5 and 13 of the Ikeda reference must also produce a "current-mode" signal as meant by applicant for there is a discrete resistance in the line with these capacitors 5 and 13 forming the same type of feedback path that applicant refers to as producing a "current-mode" signal. As to the term "improving" this is viewed as a broad term for clearly the device of Ikeda is "improved" over some other multistage amplifier.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace use the 270 amplifier of Grondahl with that of because, as the Grondahl reference is silent on the exact variable gain amplifier circuit one of ordinary skill in the art would have been motivated to use any art-recognized equivalent amplifier circuit for the amplifier of Grondahl such as the conventional amplifier circuit as taught by Ikeda

Claims 2-14, 30-39, 41-46 and 48-55 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant's arguments filed 7-7-2005 have been fully considered but they are not persuasive. Applicant argues that the Ikeda reference feedbacks a "voltage mode" signal and states "a signal is

regarded as voltage-mode signal if its voltage component represents the controlled (or controlling) parameter and a signal is regarded as a current-mode signal if its current component represents the controlled (or controlling) parameter". However applicant has not specifically defined these terms in the specification and the examiner must give the claims the broadest reasonable interpretation consistent with the specification (See MPEP 2111). As recognized by applicant there are two signals that travels down a conductor, one of voltage and one of current due to Ohm's law. Thus any electrical signal has a current-mode signal and a voltage-mode signal. Again there is no specific definition the examiner can find in the specification to "current mode" and the examiner has referred to the IEEE Standard Dictionary of Electrical and Electronics Terms Copyright 1984 and the term current mode does not appear (See the enclosed copy of page 219 of this Dictionary). Therefore the plain meaning of the term in the claim must be given (See MPEP 2111.01). Therefore a fair and reasonable interpretation of this term would be that current-mode refers to the current component of an electrical signal. With the plain meaning of the term in mind, it is also conventionally-known that an amplifier has both an AC voltage and AC current gain. Note that the input signal to Ikeda is an AC signal as this signal has a frequency and thus there will be a AC current component that is feedback through the capacitors like 5 and 13 of Ikeda and it is because there is a AC feedback that this produces a "current mode" feedback signal as recognized in the previous Office action. The current feedback component will have a controlling factor or parameter although it might be a small controlling factor compared to the controlling factor or parameter of the voltage component of the feedback signal. The rejected claims recites "providing a first current-mode feedback signal" and "providing a second current mode feedback signal". These claims do not recite that the current mode feedback signal is the dominant feedback signal and it would difficult to say that any current or any voltage component is the dominant component since these components measure two different parameters. What would be considered "dominant"?

Applicant refers to passages in the Ikeda reference as reciting the "voltage-mode feedback on its inverting input", etc.. The examiner plugged in the term "voltage mode" and "current mode" and got no hits for these terms in the Ikeda reference. The voltage component of the amplification may be described by the noted passages but this does not mean that there is no current component. There must be a current component due to the AC nature of the ~~claims~~ reference.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing

date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael B. Shingleton whose telephone number is (571) 272-1770.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal, can be reached on (571)272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306 and after July 15, 2005 the fax number will be 571-273-8300. Note that old fax number (703-872-9306) will be service until September 15, 2005.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MBS
November 2, 2005

Michael B Shingleton
Primary Examiner
Group Art Unit 2817

Notice of References Cited	Application/Control No. 10/055,523	Applicant(s)/Patent Under Reexamination KIMBALL ET AL.	
	Examiner Michael B. Shingleton	Art Unit 2817	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-			
	B	US-			
	C	US-			
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FOREIGN PATENT DOCUMENTS

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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	IEEE Standard Dictionary of Electrical and Electronics Terms Third Edition Copyright 1984 Page 219.
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

IEEE Standard Dictionary of Electrical and Electronics Terms

An American National Standard

Approved July 20, 1984

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Third Edition

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unit that when it is melted by a current within its specified current limiting range, abruptly introduces a high resistance to reduce the current magnitude and duration. *Notes:* (1) There are two classes of current limiting fuse units—power and distribution. They are differentiated one from the other by current ratings and minimum melting time current characteristics. (2) The values specified in standards for the threshold ratio, peak let-thru current, and I^T characteristics are used as the measures of current limiting ability. 103, 443

current-limiting overcurrent protective device (National Electrical Code). A device which, when interrupting currents in its current-limiting range, will reduce the current flowing in the faulted circuit to a magnitude substantially less than that obtainable in the same circuit if the device were replaced with a solid conductor having comparable impedance. 256

current-limiting range (of a current-limiting fuse) (power switchgear). That specified range of currents between the threshold current and the rated interrupting current within which current limitation occurs. 103

current-limiting reactor (power and distribution transformer). A reactor intended for limiting the current that can flow in a circuit under short-circuit conditions, or under other operating conditions such as starting, synchronizing, etcetera. 53

current-limiting resistor (industrial control). A resistor inserted in an electric circuit to limit the flow of current to some predetermined value. *See:* **control system, feedback.** 328

current loss (electric instrument) (voltage circuit current drain) (parallel loss of an electric instrument). In a voltage-measuring instrument, the value of the current when the applied voltage corresponds to nominal end-scale indication. *Note:* In other instruments it is the current in the voltage circuit at rated voltage. *See:* **accuracy rating (instrument).** 280

current margin (neutral direct-current telegraph system). The difference between the steady-state currents flowing through a receiving instrument, corresponding, respectively, to the two positions of the telegraph transmitter. *See:* **telegraphy.** 328

current of traffic. The movement of trains on a main track in one direction specified by the rules. *See:* **railway signal and equipment.** 328

current, peak (low voltage dc power circuit breakers). The instantaneous value of current at the time of its maximum value. 360

current phase-balance protection (power switchgear). A method of protection in which an abnormal condition within the protected equipment is detected by the current unbalance between the phases of a normally balanced polyphase system. 127, 103

current, polarization. Time-dependent, decaying current in the specimen, following the instant that a constant voltage is applied until steady-state conditions have been obtained. *Note:* Polarization current does not include the conductance current. The sum of the polarization and conductance currents in the specimen is that which is normally observed during measurements. *Note:* Polarization current includes both polarization absorption and capacitive-charge currents. 97

current pulsation (rotating machinery). The difference between maximum and minimum amplitudes of the motor current during a single cycle corresponding to one revolution of the driven load expressed as a percentage of the average value of the current during this cycle. *See:* **asynchronous machine.** 63

current, rated. *See:* **rated current.**

current rating (1) (rectifier transformer). The root-mean-square equivalent of a rectangular current waveshape based on direct-current rated load commutated with zero commutating angle. *See:* **rectifier transformer.** 258

(2) (relay). The current at specified frequency that may be sustained by the relay for an unlimited period without causing any of the prescribed limitations to be exceeded. 127

(3) (separable insulated connector). (A) (continuous). The designated rms alternating or direct current which the connector can carry continuously under specified conditions. (B) (fault-closure). The designated root-mean-square fault current which a load-break connector can close under specified conditions. 134

current rating of a relay (power switchgear). The limiting current at specified frequency that may be sustained by the relay for an unlimited period without causing any of the prescribed limitations to be exceeded. 103

current rating, 60-hertz (arrester). A designation of the range of the symmetrical root-mean-square fault currents of the system for which the arrester is designed to operate. *Notes:* (1) An expulsion arrester is given a maximum current rating and may also have a minimum current rating. (2) The designation of the maximum and minimum current ratings of an expulsion arrester not only specifies the useful operating range of the arrester between those extreme values for symmetrical root-mean-square short-circuit current, but indicates that at the point of application of the arrester the root-mean-square short-circuit current for the system should neither be greater than the maximum nor less than the minimum current rating. 328

current ratio (series transformer) (mercury lamp). The ratio of the (root-mean-square) primary current to the root-mean-square secondary current under specified conditions of load. 203, 274

current-recovery ratio (arc-welding apparatus). With a welding power supply delivering current through a short-circuited resistor whose resistance is equivalent to the load setting on the power supply, and with the short-circuit suddenly removed, the ratio of (1) the minimum transient value of current upon the removal of the short-circuit to (2) the final steady-state value is the current-recovery ratio. 264

current regulation (1) (constant-current transformer). The maximum departure of the secondary current from its rated value, with rated primary voltage at rated frequency applied, and at rated secondary

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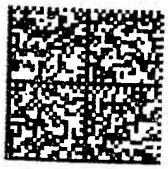

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